

Forming Shallow Trench Isolation Without the Use of CMP

Abstract

Shallow trench isolation structures are formed without CMP by depositing a thick pad nitride and depositing oxide trench fill material such that: a) the material in the trenches is above the silicon surface by a process margin that allows for removal of trench fill in subsequent front end steps so that the final trench fill level is substantially coplanar with the silicon; and b) the oxide on the interior walls is easily removed, so that the pad nitride is removed in a wet etch.